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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/229,173 01/13/99 CHATTERJEE D 0942.2800008

HM12/1121
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EXAMINER

HUTSON, R

ART UNIT

PAPER NUMBER

1652

DATE MAILED:

11/21/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/229,173

Applicant(s)

Chatterjee et al.

Examiner

Richard Hutson

Group Art Unit
1652



☒ Responsive to communication(s) filed on Aug 28, 2000

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) 1, 3-10, 13, 16, 17, 19, 26, 28, 29, and 34-38 is/are pending in the application

Of the above, claim(s) _____ is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1, 3-10, 13, 16, 17, 19, 26, 28, 29, and 34-38 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 11

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 1652

DETAILED ACTION

The art unit location of your application and examiner has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group Art Unit **1652**, Examiner **Richard Hutson Ph.D.**

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 3-10, 13, 16, 17, 19, 26, 28, 29 and 34-44 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1, 3-10, 13, 16, 17, 19, 26, 28, 29 and 34-37 are directed to all possible *Thermotoga maritima* (*Tma*) DNA polymerase mutants which are modified at least two ways selected from the group consisting of (a) to reduce or eliminate the 3'→5' exonuclease activity of the polymerase; (b) to reduce or eliminate the 5'→3' exonuclease activity of the polymerase; and (c) to reduce or eliminate discriminatory behavior against a dideoxynucleotides (claims 1 and 3-10), and methods of using and kits comprising said DNA polymerase mutants (claims 17, 19, 26, 28, 29, 34, 35 and 36) and genes encoding said DNA polymerase mutants (claims 13, 16 and 37).

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The specification only provides the representative species encompassed by these claims, wherein said Tne DNA polymerase mutations consist of a combination of the following mutations: those mutants having reduced 3'→5' exonuclease activity consisting of Asp³²³ converted to Ala³²³, those mutants having reduced discriminatory behavior against a dideoxynucleotides, consisting of Phe⁷³⁰ converted to Tyr⁷³⁰ and those mutants having reduced 5'→3' exonuclease activity consisting of the deletion of 219 amino terminal amino acids of Tne DNA Polymerase and Asp⁸ converted to Ala⁸ or Asp¹³⁷ converted to Ala¹³⁷ (Examples 11-13 and 16). There is no disclosure of any particular structure to function/activity relationship in the claimed genus. The specification also fails to describe additional representative species of these DNA Polymerases by any identifying structural characteristics or properties other than having reduced 3'→5' exonuclease activity of the polymerase, reduced 5'→3' exonuclease activity or reduced discriminatory behavior against dideoxynucleotides for which no predictability of structure is apparent. Given this lack of additional representative species as encompassed by the claims, Applicants have failed to sufficiently describe the claimed invention, in such full, clear, concise, and exact terms that a skilled artisan would recognize Applicants were in possession of the claimed invention.

Claims 38-44 are directed to all possible *Thermotoga maritima* (Tma) DNA polymerase mutants which have reduced or eliminated discriminatory behavior against dideoxynucleotides (claims 38-41), and methods of using said DNA polymerase mutants (claims 42-44). The specification only provides the representative species encompassed by these claims, wherein said

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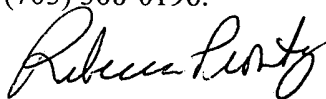
The DNA polymerases mutations consist of a Phe⁷³⁰ converted to Tyr⁷³⁰ mutation (Examples 10). There is no disclosure of any particular structure to function/activity relationship in the claimed genus. The specification also fails to describe additional representative species of these DNA polymerases by any identifying structural characteristics or properties other than the having reduced 3'→5' exonuclease activity of the polymerase, reduced 5'→3' exonuclease activity or reduced discriminatory behavior against dideoxynucleotides for which no predictability of structure is apparent. Given this lack of additional representative species as encompassed by the claims, Applicants have failed to sufficiently describe the claimed invention, in such full, clear, concise, and exact terms that a skilled artisan would recognize Applicants were in possession of the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Hutson whose telephone number is (703) 308-0066. The examiner can normally be reached on M-F from 7:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapy Achutamurthy (Murthy), can be reached on (703) 308-3804. The fax number for Official Papers to Technology Center 1600 is (703) 305-3014.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Richard Hutson Ph.D.
11/3/2000



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